

CLAIMS

What is claimed is:

1. A multivalent antiviral vaccine comprising one or more heat-inactivated viral antigens, wherein at least one viral antigen is capable in producing an immune response in a host when said vaccine is administered orally at a dose that is sufficient for preventing or treating the viral disease in said host.
- 5 2. The viral antigen of claim 1 wherein said antigen is derived from influenza virus, cytomegalovirus, avian leukosis-sarcoma virus, Rous Sarcoma virus, Mammalian C-type Murine leukemia virus, Feline leukemia virus, simian sarcoma virus, B-type Mouse mammary tumor virus, D-type virus Mason-Pfizer monkey virus, simian AIDS virus, Human T-cell leukemia virus, Simian T-cell leukemia virus, bovine leukemia virus, Human immunodeficiency virus, Simian immunodeficiency virus, Feline immunodeficiency virus, Visna/maedi virus, Equine infectious anemia virus, Caprine arthritis-encephalitis virus, spumavirus, foamy virus, endogenous retrovirus, papilloma virus, respiratory syncytial virus, poliomyelitis virus, pox virus, measles virus, arbor virus, Coxsackie virus, herpes virus, hantavirus, hepatitis virus, baculovirus, mumps virus, circovirus, arenavirus, rotavirus, Colorado Tick Fever CTF virus, Eyach virus, Langat virus, Powassan virus, Omsk hemorrhagic fever virus, Crimean-Congo hemorrhagic fever virus, 10 Yellow fever virus, Encephalitis virus, St. Louis Encephalitis virus, Venezuelan equine encephalitis virus, Western equine encephalitis virus, Chikungunya virus, Japanese encephalitis virus, West Nile virus, Kyasanur forest disease virus, Dengue fever virus, California encephalitis virus, adenovirus, Korean haemorrhagic fever virus, hantavirus, Argentine haemorrhagic fever virus, Junin virus, Aujeszky disease virus, Pseudorabies virus, Herpesvirus, Chikungunya virus, cowpox virus, ebolavirus, Ganjam virus, herpesvirus simiae, Lassa fever virus, Louping ill virus, Lymphocytic choriomeningitis virus, Marburg virus, Milkers nodule virus, Newcastle disease virus, Omsk haemorrhagic fever virus, 15 Orf virus, Parvovirus, Poliovirus, Pseudorabies, Rabies virus, Rift Valley fever virus, Russian Spring-Summer encephalitis virus, Sabia virus, vaccinia virus, vesicular stomatitis virus, Western equine encephalitis virus, or Yellow fever virus.
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3. A composition for the induction of immunity to a viral pathogen in a host in need thereof, said composition comprising reduced viral pathogen formulated as an oral pill.

4. The viral pathogen of claim 3 wherein said pathogen is selected from a group consisting of influenza virus, cytomegalovirus, avian leukosis-sarcoma virus, Rous Sarcoma virus, Mammalian C-type Murine leukemia virus, Feline leukemia virus, simian sarcoma virus, B-type Mouse mammary tumor virus, D-type virus Mason-Pfizer monkey virus, simian AIDS virus, Human T-cell leukemia virus, Simian T-cell leukemia virus, bovine leukemia virus, Human immunodeficiency virus, Simian immunodeficiency virus, Feline immunodeficiency virus, Visna/maedi virus, Equine infectious anemia virus, Caprine arthritis-encephalitis virus, spumavirus, foamy virus, endogenous retrovirus, papilloma virus, respiratory syncytial virus, poliomyelitis virus, pox virus, measles virus, arbor virus, Coxsackie virus, herpes virus, hantavirus, hepatitis virus, baculovirus, mumps virus, circovirus, arenavirus, rotavirus, Colorado Tick Fever CTF virus, Eyach virus, Langat virus, Powassan virus, Omsk hemorrhagic fever virus, Crimean-Congo hemorrhagic fever virus, Yellow fever virus, Encephalitis virus, St. Louis Encephalitis virus, Venezuelan equine encephalitis virus, Western equine encephalitis virus, Chikungunya virus, Japanese encephalitis virus, West Nile virus, Kyasanur forest disease virus, Dengue fever virus, California encephalitis virus, adenovirus, Korean haemorrhagic fever virus, hantavirus, Argentine haemorrhagic fever virus, Junin virus, Aujeszky disease virus, Pseudorabies virus, Herpesvirus, Chikungunya virus, cowpox virus, ebolavirus, Ganjam virus, herpesvirus simiae, Lassa fever virus, Louping ill virus, Lymphocytic choriomeningitis virus, Marburg virus, Milkers nodule virus, Newcastle disease virus, Omsk haemorrhagic fever virus, Orf virus, Parvovirus, Poliovirus, Pseudorabies, Rabies virus, Rift Valley fever virus, Russian Spring-Summer encephalitis virus, Sabia virus, vaccinia virus, vesicular stomatitis virus, Western equine encephalitis virus, and Yellow fever virus.

5. An immunogen formulated as an oral pill, wherein upon oral administration, said immunogen retains the ability to elicit an immune response in a host in need of immune response.

6. The immunogen of claim 5 is administered to the host without an immune adjuvant.

7. The immunogen of claim 5 wherein said immunogen is selected from a group consisting of immunogens derived from fungi influenza virus, cytomegalovirus, avian leukosis-sarcoma virus, Rous Sarcoma virus, Mammalian C-type Murine leukemia virus, Feline leukemia virus, simian sarcoma virus, B-type Mouse 5 mammary tumor virus, D-type virus Mason-Pfizer monkey virus, simian AIDS virus, Human T-cell leukemia virus, Simian T-cell leukemia virus, bovine leukemia virus, Human immunodeficiency virus, Simian immunodeficiency virus, Feline immunodeficiency virus, Visna/maedi virus, Equine infectious anemia virus, Caprine arthritis-encephalitis virus, spumavirus, foamy virus, endogenous 10 retrovirus, papilloma virus, respiratory syncytial virus, poliomyelitis virus, pox virus, measles virus, arbor virus, Coxsackie virus, herpes virus, hantavirus, hepatitis virus, baculovirus, mumps virus, circovirus, arenavirus, rotavirus, Colorado Tick Fever CTF virus, Eyach virus, Langat virus, Powassan virus, Omsk 15 hemorrhagic fever virus, Crimean-Congo hemorrhagic fever virus, Yellow fever virus, Encephalitis virus, St. Louis Encephalitis virus, Venezuelan equine encephalitis virus, Western equine encephalitis virus, Chikungunya virus, Japanese encephalitis virus, West Nile virus, Kyasanur forest disease virus, Dengue fever virus, California encephalitis virus, adenovirus, Korean 20 haemorrhagic fever virus, hantavirus, Argentine haemorrhagic fever virus, Junin virus, Aujeszky disease virus, Pseudorabies virus, Herpesvirus, Chikungunya virus, cowpox virus, ebolavirus, Ganjam virus, herpesvirus simiae, Lassa fever virus, Louping ill virus, Lymphocytic choriomeningitis virus, Marburg virus, Milkers nodule virus, Newcastle disease virus, Omsk haemorrhagic fever virus, 25 Orf virus, Parvovirus, Poliovirus, Pseudorabies, Rabies virus, Rift Valley fever virus, Russian Spring-Summer encephalitis virus, Sabia virus, vaccinia virus, vesicular stomatitis virus, Western equine encephalitis virus, and Yellow fever virus.

8. The immune response of claim 5 wherein said immune response is directed against viral infection.

30 9. The oral pill of claim 5 wherein the amount of immunogen comprised in said pill is between about 0.0000001% to about 20% by weight.

10. An oral composition suitable for treating or preventing a pathogen-induced infection in a host, the composition comprising a first component comprising a

denatured antigen of an infection-inducing pathogen and a second component comprising a denatured tissue from a pathogen-infected host.

11. The oral composition of claim 10 said composition further comprising calcium.
12. The oral composition of claim 11 said composition further comprising magnesium.

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